

INVASIVE SPECIES CONTROL PROJECTS (R1 SMALL GRANTS) FY 2011 FINAL REPORT

Project Title: Eradication of Yellow Crazy Ants on Johnston Island

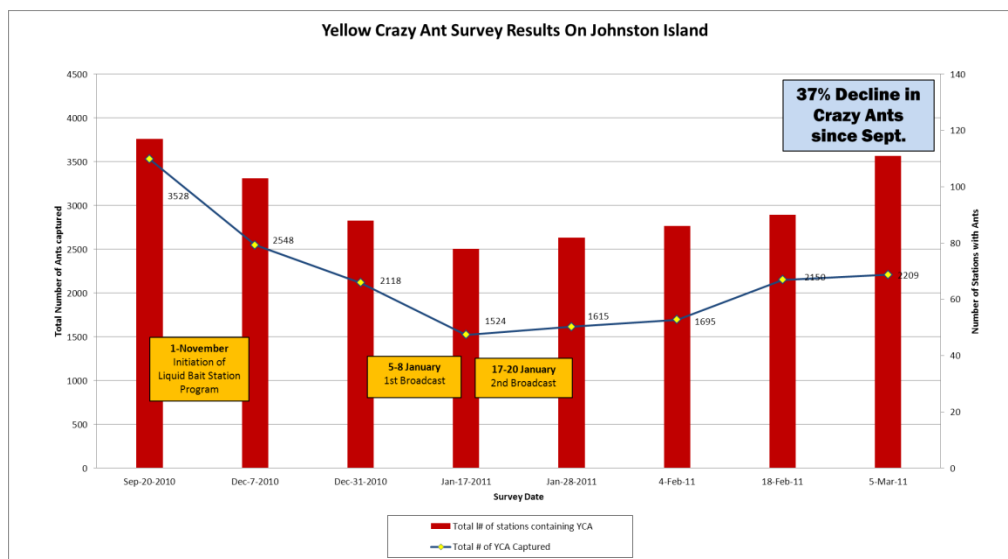
Station: Johnston Atoll NWR, Pacific Reefs NWRC, Pacific Remote Islands Marine National Monument

Contact Person: Lee Ann Woodward

Project Description: While on a research and monitoring cruise that visited Johnston Atoll in late January 2010, USFWS employees found an infestation of *Anoplolepis gracilipes*, or yellow crazy ants (YCA) affecting approximately 40 of 260-hectare Johnston Island. The YCA is a successful “tramp” species which has spread through Oceania and the Tropics hitchhiking on human transport. They form large, multi-queen “super colonies” that disperse mainly by budding. The rate of expansion for new colonies is startlingly fast, with infestation growing as rapidly as 0.1- 3.0 meters per day. This project continued eradication efforts of the YCA from Johnston Island, Johnston Atoll NWR.

Invasive Species Targeted: *Anoplolepis gracilipes*, or yellow crazy ants (YCA)

Project Completion Date or Estimated Completion Date: Feb 8, 2012, achieved 97.8% removal, the remainder will require monitoring and spot treatment.

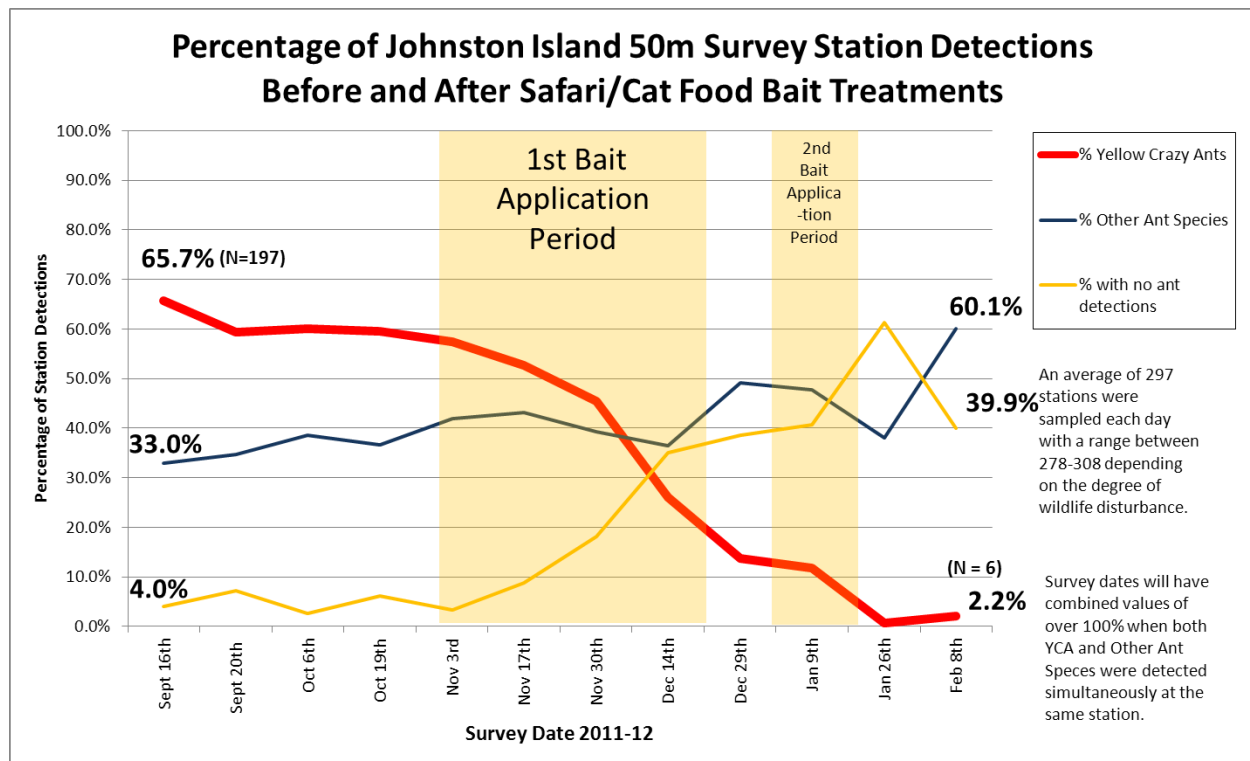


Project Results: After intensive eradication operations, monitoring showed an initial downward trend in the ant population. While the number of monitoring stations with ants present has decreased by 37%, the total number of ants collected had decreased by 57% since September. However, although the effort has had notable results, it has taken more than 5 times longer than anticipated to reach this point. There is

evidence to suggest the bait applications were spaced too far apart to effectively reach all colonies. y Additionally, the effort has expended 3 times the anticipated amount of bait. The relatively lower effectiveness of the baits to YCA as compared to the other ant species on the island showed the need to try additional baits that have been specifically formulated to the

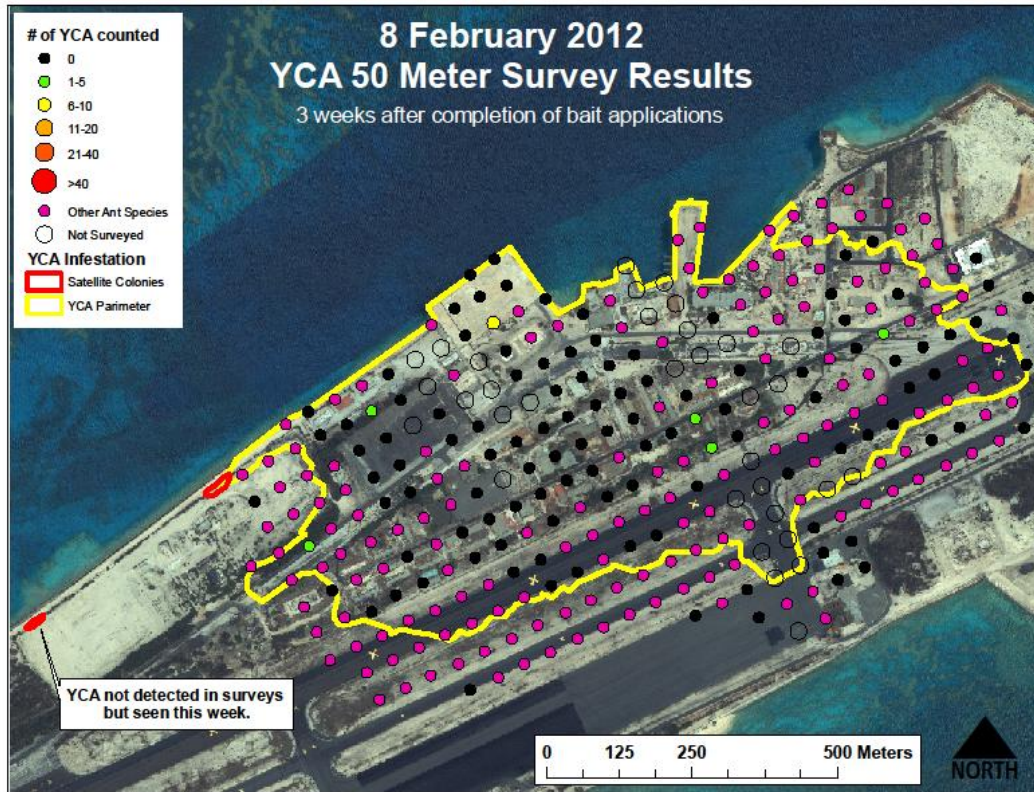
Johnston Island YCA population. Palatability trials were conducted to best target the YCA. Based on those results, baits were tested in small plots to assess efficacy of formulations.

A new adaptive management strategy was adopted that explored tailoring bait adjuvants in the field in response to current ant colony demands. The effectiveness of a variety of insecticides, adjuvants, and application techniques has been investigated using experimental treatment plots, bioassays and palatability trials. By October 2011, an effective bait was developed using a combination of adjuvants that consisted of canned cat food, water, thickener and the insecticide dinotefuran (0.05%). Bait was applied manually to the infestation twice between October 2011 and January 2012.



Monitoring results indicate the bait had an immediate and significant effect with YCA numbers crashing within 12 hours after each application. Within three days after the second bait application, both YCA numbers and the number of stations detecting them had dropped by >99% across the infestation area. Detections of ant species other than YCA have remained relatively constant over the treatment periods.

As of February 1, 2012, YCA numbers remain suppressed though ants are still present in isolated patches. This indicates the necessity of continued monitoring and treatments to achieve the goal of complete eradication. Benefits of the CAST work have been immediately apparent as the crash in the YCA population was fortuitously timed with the peak in Red-tailed Tropicbird nest initiation. Preliminary monitoring results from 30 plots representing a total of 8.8% of the infestation area have found 70 active Red-tailed Tropicbird nests where no more than a few have been observed since 2009.



Number of Acres Treated: 130 acres

Number of Acres Inventoried and/or Mapped: 640 acres

Number of Acres Restored: almost 130 acres

Total Grant Amount: \$175,000

Breakdown of Expenditures:

Category	Total \$ Spent	% of Total Grant
Equipment/Supplies	50,000	28.6
Chemical/Bait	70,000	40.0
Biocontrol Agents	0	0
Travel	10,000	5.7
Biotech Salary	35,000	20.0
Restoration Materials	0	0
Other (Food)	10,000	5.7
TOTAL	175,000	100